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10/538,713	01/22/2007	Alwyn John Seeds	ZIN-001	6908
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GOODWIN PROCTER LLP PATENT ADMINISTRATOR 53 STATE STREET EXCHANGE PLACE BOSTON, MA 02109-2881			EXAMINER DOBSON, DANIEL G	
			ART UNIT 2613	PAPER NUMBER
			NOTIFICATION DATE 01/14/2010	DELIVERY MODE ELECTRONIC

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

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Office Action Summary

Application No.

10/538,713

Applicant(s)

SEEDS ET AL.

Examiner

DANIEL G. DOBSON

Art Unit

2613

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 10 November 2009.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-29 is/are pending in the application.
- 4a) Of the above claim(s) 1-13 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 14-29 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO/SB/22)
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date: _____
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: _____
- Paper No(s)/Mail Date 11/10/2009

DETAILED ACTION

Response to Arguments

1. Applicant's arguments, filed 11/10/2009, with respect to the rejection(s) of claim(s) 14-29 under § 103 (in view of *Stuart* and *Cunningham*) have been fully considered and are persuasive. Therefore, the rejection has been withdrawn. However, upon further consideration, a new ground(s) of rejection is made in view of Printed Publication "Transmission of a single 2.5 Gb/s subcarrier modulated channel over 300m of 62.5 um multimode fibre" to Tyler et al.

Claim Rejections - 35 USC § 102

2. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

3. Claims 14, 22, 26, and 27 are rejected under 35 U.S.C. 102(b) as being anticipated by Printed Publication "Transmission of a single 2.5 Gb/s subcarrier modulated channel over 300m of 62.5 um multimode fibre" to Tyler et al.

As to **Claim 14**, *Tyler* discloses a method of reducing signal loss in an optical signal transmission system using a multimode optical fibre (p. 354, ¶ 3, better performance is achieved over 300m of MMF using subcarrier modulation and offset launch), the method comprising:

coupling a signal into the multimode optical fibre (Fig. 2, signal from laser is coupled into MMF) using a launch at an offset from the fibre axis (p. 354, ¶ 5, singlemode output of laser is offset launched into the MMF),

wherein the signal is a radio-frequency-modulated signal (Fig. 2; p. 354, ¶ 5, data is modulated onto a 5.1 GHz subcarrier before being used to modulate the laser.)

As to **Claim 22**, *Tyler* discloses a radio frequency optical communication system comprising (p. 354, ¶ 3, better performance is achieved over 300m of MMF using subcarrier modulation and offset launch):

a multimode optical fibre (Fig. 2, MMF);

a laser transmitter having an input port for causing the laser transmitter to provide radio- frequency modulated optical signals to said fibre (Fig. 2, laser with input for data (on 5.1 GHz subcarrier) on left and optical output for coupling to MMF on right); and

a coupler between the laser transmitter and the fibre, the coupler having a launch offset from the fibre axis (p. 354, ¶ 5, singlemode output of laser is offset coupled into the MMF.)

As to **Claim 26**, *Tyler* discloses a photodetector (Fig. 2, detector)

As to **Claim 27**, *Tyler* discloses a demodulator for demodulating the output of the photodetector (Fig. 2, preamp, mixer, amp, and LPF recover baseband data.)

Claim Rejections - 35 USC § 103

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

5. Claims 15-21, 23-25, 28, and 29 are rejected under 35 U.S.C. 103(a) as being unpatentable over Printed Publication "Transmission of a single 2.5 Gb/s subcarrier modulated channel over 300m of 62.5 μ m multimode fibre" to Tyler et al. and U.S. Patent 6,064,786 to Cunningham et al.

As to **Claim 15**, *Cunningham* discloses wherein the launch is collinear with an axis of the multimode fibre (Fig. 10.)

At the time of the invention, it would have been obvious for a person of ordinary skill in the art to use a launch collinear with an axis of the multimode fibre as taught by *Cunningham* in the system disclosed by *Tyler*. The suggestion is from *Tyler* that known offset launch techniques in conjunction with SCM techniques improve link performance.

Tyler and *Cunningham* are from the same art with respect to optical communication, and are therefore analogous art.

As to **Claim 16**, *Cunningham* discloses wherein the signal is provided by a transverse mode laser transmitter (Col. 8, l. 49.)

The suggestion/motivation is the same as that used in the rejection for claim 15.

As to **Claim 17**, *Cunningham* discloses wherein the launch comprises a single transverse mode laser (Col. 8, l. 49) coupled to a single mode fibre pigtail (Fig. 9, 2) in communication with a GRIN multimode fibre (Fig. 9, 6, Col. 7, ll. 20-25) using a mode-conditioning patchcord (Fig. 9, 2.)

The suggestion/motivation is the same as that used in the rejection for claim 15.

As to **Claim 18**, *Cunningham* discloses a laser receptacle package (Fig. 9, 2) coupled to a GRIN multimode fibre (Fig. 9, 6, Col. 7, ll. 20-25) where the axis of the optical output from a single transverse mode laser (Col. 8, l. 49) has been offset from that of the fibre (Col. 7, ll. 18-20.)

The suggestion/motivation is the same as that used in the rejection for claim 15.

As to **Claim 19**, *Cunningham* discloses wherein the multimode fibre has a core diameter of 62.5 μm (Col. 7, ll. 12) and wherein the coupling step comprises using a launch having an offset distance measured from the centre of the multimode fibre core to the centre of the optical radiation emitted from the transmitter of approximately 10 μm to approximately 30 μm (Fig's. 4 and 5 show that the offset can be changed as desired and includes the range from 10 μm to 30 μm .)

The suggestion/motivation is the same as that used in the rejection for claim 15.

As to **Claim 20**, *Cunningham* discloses where the offset distance measured from the centre of the multimode fibre core to the centre of the optical radiation emitted from the transmitter is approximately 23 μm to approximately 30 μm (Fig's. 4 and 5 show that the offset can be changed as desired and includes the range from 23 μm to 30 μm .)

The suggestion/motivation is the same as that used in the rejection for claim 15.

As to **Claim 21**, *Cunningham* discloses wherein the multimode fiber is installed in a building (Col. 1, l. 18.)

The suggestion/motivation is the same as that used in the rejection for claim 15.

As to **Claim 23**, *Cunningham* discloses wherein the transmitter is a transverse mode laser transmitter (Col. 8, l. 49.)

At the time of the invention, it would have been obvious for a person of ordinary skill in the art to use a transverse mode laser transmitter to achieve an offset launch as taught by *Cunningham* in the system disclosed by *Tyler*. The suggestion is from *Tyler* that known offset launch techniques in conjunction with SCM techniques improve link performance

As to **Claim 24**, *Cunningham* discloses wherein the launch restricts the number of modes excited in the fibre (Col. 3, ll. 35-7.)

The suggestion/motivation is the same as that used in the rejection for claim 23.

As to **Claim 25**, *Cunningham* discloses wherein the launch is collinear with an axis of the multimode fibre (Fig. 10.)

The suggestion/motivation is the same as that used in the rejection for claim 23.

As to **Claim 28**, *Cunningham* discloses wherein the multimode fibre has a core diameter of 62.5 μm (Col. 7, ll. 12) and wherein the coupling step comprises using a launch having an offset distance measured from the centre of the multimode fibre core to the centre of the optical radiation emitted from the transmitter of approximately 10 μm to approximately 30 μm (Fig's. 4 and 5 show that the offset can be changed as desired and includes the range from 10 μm to 30 μm .)

The suggestion/motivation is the same as that used in the rejection for claim 23.

As to **Claim 29**, *Cunningham* discloses where the offset distance measured from the centre of the multimode fibre core to the centre of the optical radiation emitted from the transmitter is approximately 23 μm to approximately 30 μm (Fig's. 4 and 5 show that the offset can be changed as desired and includes the range from 23 μm to 30 μm .)

The suggestion/motivation is the same as that used in the rejection for claim 23.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to DANIEL G. DOBSON whose telephone number is (571)272-9781. The examiner can normally be reached on Mon. - Fri. 8:00 AM - 5:00 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Kenneth Vanderpuye can be reached on (571) 272-3078. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Daniel G. Dobson/
Examiner, Art Unit 2613
01/04/2010

/Kenneth N Vanderpuye/

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Supervisory Patent Examiner, Art Unit 2613